

Malaysian King-Crabs

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(with four text-figures)

A recent study of King-Crabs obtained from the coasts and waters of the Malay Peninsula and from Borneo has enabled me to supplement the observations of Annandale (1909) and others on these interesting relics of an archaic fauna. The bulk of the material is in the collection of the Raffles Museum, and of the Selangor Museum, Kuala Lumpur. Much of it has been brought in by the Government experimental trawler and was collected by Mr. W. Birtwistle, Fisheries Economist. I am also indebted to Mr. E. Banks, Curator of the Sarawak Museum, and others for several interesting specimens.

The classification adopted is that of Pocock (1902). It has many disadvantages. Shipley, in 1909, criticising it said, "It will be noticed that in his classification the generic name *Limulus* has disappeared. I have, however, retained it in this article, partly because I regard the name as so well established that every one knows what it denotes, and partly because in a group which contains confessedly very few species, differing inter se comparatively slightly, it seems unnecessary to complicate matters with sub-families and new names." I agree with this criticism in its entirety, but as any attempt to re-establish the name *Limulus*, and at the same time to bring the whole group once more within its more reasonable bounds as a single genus would necessitate delving

into literature which is not at the moment accessible, I leave the matter for the present¹.

Three species, belonging to Pocock's sub-family *Tachypleinae*, are known from Malaysia. Their names and distribution are given below.

1. *Tachypleus gigas* (Muller), the Indo-Papuan King-Crab, ranging as far west as the Bay of Bengal, and east to the Torres Straits.

2. *Tachypleus tridentatus* (Leach), the Chinese King-Crab, off the coast of N. Borneo, where it is found side by side with *T. gigas*, and north as far as China and the south of Japan, but not recorded so far west as the Malay Peninsula. Essentially a northern form.

3. *Carcinoscorpius rotundicauda* (Latr.), the Estuarine King-Crab. This species has a wider range than its estuarine nature would suggest, occurring as it does in India, around both coasts of the Malay Peninsula as far as the Gulf of Siam, and reappearing in Borneo, the Moluccas and Philippines.

Even amongst scientific workers it is quite usual to find the belief that only one species of King-Crab (*Limulus moluccanus* = *Tachypleus gigas*) is found around these shores. It is therefore of great interest to discover that the Malays recognise the distinction between *Tachypleus gigas* and *Carcinoscorpius rotundicauda* and know them by different names. Mr. A. W. Hamilton has kindly acquainted me with the names used in Singapore which are:—

"belangkas" — *Tachypleus gigas*

"këroncho" — *Carcinoscorpius rotundicauda*

The term "belangkas" is also in use in the Peninsula, where, however, "belangkas padi" replaces "këroncho" for the smaller species. The name *belangkas* is given by Winstedt (1922) as "King-Crab", *këroncho* as the young. The smaller size of *C. rotundicauda* may be the cause of this use of the term. The largest specimens of *Carcinoscorpius* that I have seen were about four or five inches across the carapace, and only a close examination or a knowledge of their habits would reveal the fact that they were not juvenile *Tachypleus gigas*. The eggs, *telor belangkas*, are greatly esteemed as a delicacy, especially by women during pregnancy, according to a Malay informant. From another source I learn that the King-Crab is regarded by strict Mohamedans as "haram", but that liking often discounts the religious ban.

The characters in which these species vary have been clearly set forth by Pocock, but the following additional observations seem worthy of note. *Tachypleus gigas* grows to a length of about 500 mm., and though the relation of the caudal spine to the total

length is variable, it is roughly a half. A female specimen of *Tachypleus tridentatus* in the Raffles Museum has a total length of 745 mm. The caudal spine is incomplete, but appears to have been approximately half the total length. In *Carcinoscorpius rotundicauda* the total length of the adult is about 335 mm. The caudal spine is relatively longer than in *Tachypleus* in all the specimens which I have examined. This feature might therefore be used as an argument for separating *Tachypleus* from *Carcinoscorpius*, but I should prefer to regard the distinction as sub-generic.* In the Selangor Museum are a ♂ and ♀ *C. rotundicauda* which were taken in copulation and may therefore be regarded as fully adult. In both sexes the moveable spines gradually decrease in size until the last is as short as that of the female *T. gigas*. The ♂ of this pair and another male both have fully chelate claspers but may be recognised by the greatly swollen propodites of the first two pairs of legs. (Fig. 1). Lyddeder, (1896), referred to the swollen appendages of the ♂, but Pocock omits mention of it in the text, although his figure seems to exaggerate the general difference in form between the ♂ and ♀ appendages).



Fig. 1.—*Carcinoscorpius rotundicauda*: Propodite

Aberrations are common in the group, judging from the percentage amongst the specimens I have seen. Some of them may be related to growth, others to sex differentiation, secondary characters usually associated with one sex appearing in the other, a phenomenon not uncommon in other phyla. The Raffles Museum possesses a specimen of *Tachypleus gigas* measuring about 330 mm. in length. The last few joints of the thoracic appendages are missing, but judging by the fact that the moveable spines bordering the opisthoma are long it may be suggested that it is a male. (The shortening of the spines in the female is usually completed before the animal reaches this size). It differs from Pocock's description of the sub-family in having no spike on the lateral crest bordering the gill-chamber on the ventral surface of the opisthoma. This spike is also absent in all my immature specimens of *Carcinoscorpius rotundicauda*, but is present in the adults both of this species and of *Tachypleus gigas*, in varying degrees of strength quite unrelated

* Since I wrote the above the International Commission on Zoological Nomenclature has decided the name *Limulus* shall stand in place of *Xiphosura*, the generic name for the American species. (Opinion No. 104).

* This was apparently also the view taken by Annandale (loc. cit.), but it is open to doubt whether the name *Carcinoscorpius* is valid even as a sub-genus, even if *Limulus* is accepted as the generic name.

to the age or size of the specimen. Another undoubted male of *Tachypleus gigas* possesses a notable peculiarity. (Fig. 2). The



Fig. 2.—*Tachypleus gigas*: Aberrant ♂

fourth of the moveable spines on either side of the opisthoma is extremely short and truncate, as in the female, but the remainder are of full length. The claspers of this specimen are of the typical hemichelate form. (Fig. 3).

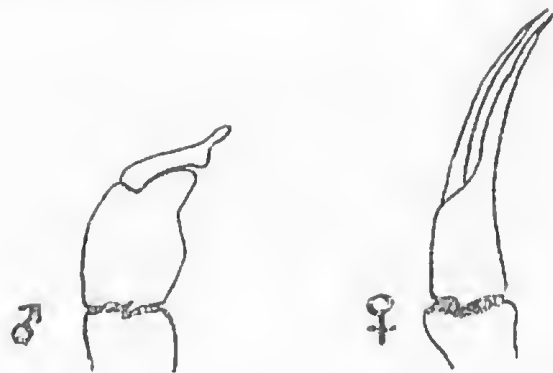


Fig. 3.—*Tachypleus gigas*: Male and female appendages

Partial regeneration of lost parts occurs, but not, apparently, to the same extent as in Crustacea. One fully mature ♀ of *T. gigas* has had the angle of the prosoma torn away. (Fig. 4).



Fig. 4.—*Tachypleus gigas*: Regeneration

The broken edge has healed and a new and perfect spine has been formed, but at the inner extremity of the wound and not at the outer as might be expected; a similar case occurs in a ♂, the raised margin being also reproduced along the healed surface. Several other specimens of the same species have lost spines both moveable and fixed from the margin of the opisthoma; in every case the wounded surface has entirely closed and healed without regeneration of any of the spines. Similar cases occur in *C. rotundicauda*.

Annandale speaks of *Limulus moluccanus* (= *Tachypleus gigas*) as essentially a marine form. This is borne out by the specimens before me, although his statement that the species is to be found from the tide-line to a depth exceeding 20 fathoms needs modifying. Most of the specimens from the waters of the Malay Peninsula were obtained at a depth exceeding 20 fathoms. They were taken by the trawler "Tongkol", which usually fishes in slightly deeper water (about 30 fathoms) in order to avoid coral debris. The presence of coral may tend to drive the animal to deeper water where it can find a sandy or muddy bottom, but the fact that it is occasionally met with on the beach tends to show that it may dwell as high as the tide-line where conditions are favourable and coral is lacking. Its presence probably cannot be accounted for on the supposition

that it comes inshore to breed as neither this species nor *rotundicauda* buries its eggs as do the American and Chinese forms, but carries them about attached to the swimmerets.

Tachypleus tridentatus is of such great size that it is most probably to be found usually in the deeper water, but little is known of this rare species. Shipley quotes an account by Kishinouye of oviposition, which apparently takes place between tide-marks.

The third species, *Carcinoscorpius rotundicauda*, is said by Annandale to be mainly if not entirely estuarine. He records the fact that it is found at Calcutta, up the Hooghly river, about 90 miles from the open sea. I have specimens from Singapore; Morib, near the mouth of the Langat River on the West Coast of the Peninsula; Mersing, at the mouth of the river of that name on the East Coast; and Kuching, Sarawak, Borneo, all estuarine localities. I have picked up specimens on the beach at some distance from the river mouth at Mersing but none were living. The wide range of distribution of the species must be attributed to its great age.

Key to Malaysian species (only):—

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|----|---|--|---------------------------------------|---|
| 1. | { | Caudal spine smooth | <i>Carcinoscorpius</i> | . |
| | | | | |
| | { | Caudal spine serrated dorsally | | |
| | | | (<i>Tachypleus</i>) | |
| | | |2 | |
| 2. | { | Margin of opisthoma at root of caudal spine armed with three teeth | <i>Tachypleus tridentatus</i> . | |
| | | | | |
| | { | Margin of opisthoma at root of caudal spine armed with a single tooth | | |
| | | | <i>Tachypleus gigas</i> . | |

REFERENCES

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 Winstedt. An English-Malay Dictionary (1922), p. 243.